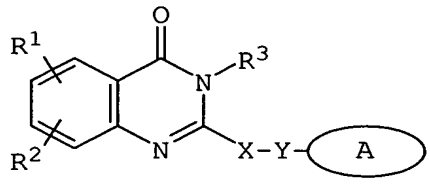
IN THE CLAIMS:

1. (Currently amended) A method of disrupting leukocyte function comprising a step of contacting leukocytes with a compound having a structure



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the bicyclic system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b, and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, and SO_2, NH, O, C(=O), OC(=O), C(=O)O, and $NHC(=O)CH_2S$;

R^1 and R^2, independently, are selected from the group consisting of hydrogen, C_{1-6}alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}alkyleneN(R^a)_2$, NO_2, OR^a, CF_3, OCF_3, $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, $arylOR^b$, Het, $NR^aC(=O)C_{1-3}alkyleneC(=O)OR^a$, $arylO$-$C_{1-3}alkyleneN(R^a)_2$, $arylOC(=O)R^a$, $C_{1-4}alkyleneC(=O)OR^a$, $OC_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)$-$OR^a$, $C(=O)NR^aSO_2R^a$, $C_{1-4}alkyleneN(R^a)_2$, $C_{2-6}alkenylene$-$N(R^a)_2$, $C(=O)NR^aC_{1-4}alkyleneOR^a$, $C(=O)NR^aC_{1-4}alkyleneHet$, $OC_{2-4}alkyleneN(R^a)_2$, $OC_{1-4}alkyleneCH(OR^b)CH_2N(R^a)_2$,

OC_{1-4}alkyleneHet, OC_{2-4}alkyleneOR^a, OC_{2-4}alkyleneNR^{a}C(=O)-OR^a, NR^{a}C$_{1-4}$alkyleneN(R^a)$_2$, NR^{a}C(=O)R^a, NR^{a}C(=O)N(R^a)$_2$, N(SO^{2}C$_{1-4}$alkyl)$_2$, NR^a(SO$_2$C$_{1-4}$alkyl), SO$_2$N(R^a)$_2$, OSO$_2$CF$_3$, C$_{1-3}$alkylenearyl, C$_{1-4}$alkyleneHet, C$_{1-6}$alkyleneOR^b, C$_{1-3}$alkyleneN(R^a)$_2$, C(=O)N(R^a)$_2$, NHC(=O)C$_1$-C$_3$alkylenearyl, C$_{3-8}$cycloalkyl, C$_{3-8}$heterocycloalkyl, arylOC$_{1-3}$alkylene-N(R^a)$_2$, arylOC(=O)R^b, NHC(=O)C$_{1-3}$alkyleneC$_{3-8}$heterocycloalkyl, NHC(=O)C$_{1-3}$alkyleneHet, OC$_{1-4}$alkyleneOC$_{1-4}$alkylene-C(=O)OR^b, C(=O)C$_{1-4}$alkyleneHet, and NHC(=O)haloC$_{1-6}$alkyl;

or R^1 and R^2 are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^3 is selected from the group consisting of optionally substituted hydrogen, C$_{1-6}$alkyl, C$_{3-8}$cycloalkyl, C$_{3-8}$heterocycloalkyl, C$_{1-4}$alkylenecycloalkyl, C$_{2-6}$alkenyl, C$_{1-3}$alkylenearyl, arylC$_{1-3}$alkyl, C(=O)R^a, aryl, heteroaryl, C(=O)OR^a, C(=O)N(R^a)$_2$, C(=S)N(R^a)$_2$, SO$_2$R^a, SO$_2$N(R^a)$_2$, S(=O)R^a, S(=O)N(R^a)$_2$, C(=O)NR^{a}C$_{1-4}$alkyleneOR^a, C(=O)NR^{a}C$_{1-4}$alkyleneHet, C(=O)C$_{1-4}$alkylenearyl, C(=O)C$_{1-4}$alkyleneheteroaryl, C$_{1-4}$alkylenearyl substituted with one or more of SO$_2$N(R^a)$_2$, N(R^a)$_2$, C(=O)OR^a, NR^{a}SO$_2$CF$_3$, CN, NO$_2$, C(=O)R^a, OR^a, C$_{1-4}$alkyleneN(R^a)$_2$, and OC$_{1-4}$alkyleneN(R^a)$_2$, C$_{1-4}$alkyleneheteroaryl, C$_{1-4}$alkylene-Het, C$_{1-4}$alkyleneC(=O)C$_{1-4}$alkylenearyl, C$_{1-4}$alkyleneC(=O)-C$_{1-4}$alkyleneheteroaryl, C$_{1-4}$alkyleneC(=O)Het, C$_{1-4}$alkyl-eneC(=O)N(R^a)$_2$, C$_{1-4}$alkyleneOR^a, C$_{1-4}$alkyleneNR^{a}C(=O)R^a, C$_{1-4}$alkyleneOC$_{1-4}$alkyleneOR^a, C$_{1-4}$alkyleneN(R^a)$_2$, C$_{1-4}$alkyl-eneC(=O)OR^a, and C$_{1-4}$alkyleneOC$_{1-4}$alkyleneC(=O)OR^a;

R^a is selected from the group consisting of hydrogen, C$_{1-6}$alkyl, C$_{3-8}$cycloalkyl, C$_{3-8}$heterocycloalkyl, C$_{1-3}$alkyleneN(R^c)$_2$, aryl, arylC$_{1-3}$alkyl, C$_{1-3}$alkylenearyl,

heteroaryl, heteroarylC_{1-3}alkyl, and C_{1-3}alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^b is selected from the group consisting of hydrogen, C_{1-6}alkyl, heteroC_{1-3}alkyl, C_{1-3}alkyleneheteroC$_{1-3}$alkyl, arylheteroC$_{1-3}$alkyl, and aryl, heteroaryl, arylC_{1-3}alkyl, heteroarylC_{1-3}alkyl, C_{1-3}alkylenearyl, and C_{1-3}alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C_{1-4}alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts ~~and~~ or solvates,

in an amount sufficient to inhibit phosphatidylinositol 3-kinase delta activity in said leukocytes.

2. (Original) The method according to claim 1 wherein the compound is selected from the group consisting of

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-6,7-dimethoxy-3H-quinazolin-4-one

2-(6-aminopurin-o-ylmethyl)-6-bromo-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-o-ylmethyl)-3-(2-chlorophenyl)-7-fluoro-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-6-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-fluoro-3H-quinazolin-4-one

2-(6-aminopurin-o-ylmethyl)-5-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chlorophenyl)-5-methyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-8-chloro-3-(2-chlorophenyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-biphenyl-2-yl-5-chloro-3H-quinazolin-4-one

5-chloro-2-(9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-chloro-3-(2-fluorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-fluorophenyl)-3H-quinazolin-4-one

3-biphenyl-2-yl-5-chloro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

5-chloro-3-(2-methoxyphenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-fluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6,7-dimethoxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

6-bromo-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-8-trifluoromethyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-benzo[g]quinazolin-4-one

6-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

8-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-7-fluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-7-nitro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6-hydroxy-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

5-chloro-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6,7-difluoro-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-6-fluoro-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-isopropylphenyl)-5-methyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

3-(2-fluorophenyl)-5-methyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-o-tolyl-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-5-chloro-3-(2-methoxy-phenyl)-3H-quinazolin-4-one

2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclopropyl-5-methyl-3H-quinazolin-4-one

3-cyclopropylmethyl-5-methyl-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclopropylmethyl-5-methyl-3H-quinazolin-4-one

2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclopropyl-methyl-5-methyl-3H-quinazolin-4-one

5-methyl-3-phenethyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(2-amino-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-phenethyl-3H-quinazolin-4-one

3-cyclopentyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclopentyl-5-methyl-3H-quinazolin-4-one

3-(2-chloropyridin-3-yl)-5-methyl-2-(9H-purin-6-ylsul-fanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-chloropyridin-3-yl)-5-methyl-3H-quinazolin-4-one

3-methyl-4-[5-methyl-4-oxo-2-(9H-purin-6-ylsulfanyl-methyl)-4H-quinazolin-3-yl]-benzoic acid

3-cyclopropyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclopropyl-5-methyl-3H-quinazolin-4-one

5-methyl-3-(4-nitrobenzyl)-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-cyclohexyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-cyclohexyl-5-methyl-3H-quinazolin-4-one

2-(2-amino-9H-purin-6-ylsulfanylmethyl)-3-cyclohexyl-5-methyl-3H-quinazolin-4-one

5-methyl-3-(E-2-phenylcyclopropyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-fluoro-2-[(9H-purin-6-ylamino)-methyl]-3H-quinazolin-4-one

2-[(2-amino-9H-purin-6-ylamino)methyl]-3-(2-chloro-phenyl)-5-fluoro-3H-quinazolin-4-one

5-methyl-2-[(9H-purin-6-ylamino)methyl]-3-o-tolyl-3H-quinazolin-4-one

2-[(2-amino-9H-purin-6-ylamino)methyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-[(2-fluoro-9H-purin-6-ylamino)methyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one

(2-chlorophenyl)-dimethylamino-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

5-(2-benzyloxyethoxy)-3-(2-chlorophenyl)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

6-aminopurine-9-carboxylic acid 3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl ester

N-[3-(2-chlorophenyl)-5-fluoro-4-oxo-3,4-dihydro-quinazolin-2-ylmethyl]-2-(9H-purin-6-ylsulfanyl)-acetamide

2-[1-(2-fluoro-9H-purin-6-ylamino)ethyl]-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-[1-(9H-purin-6-ylamino)ethyl]-3-o-tolyl-3H-quinazolin-4-one

2-(6-dimethylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-7-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(2-methyl-6-oxo-1,6-dihydro-purin-9-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one

2-(amino-dimethylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(2-amino-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(4-amino-1,3,5-triazin-2-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(7-methyl-7H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(2-oxo-1,2-dihydro-pyrimidin-4-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-purin-7-ylmethyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-purin-9-ylmethyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(9-methyl-9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

2-(2,6-Diamino-pyrimidin-4-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(5-methyl-[1,2,4]triazolo[1,5-a]pyrimidin-7-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(2-methylsulfanyl-9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

2-(2-hydroxy-9H-purin-6-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(1-methyl-1H-imidazol-2-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

5-methyl-3-o-tolyl-2-(1H-[1,2,4]triazol-3-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(2-amino-6-chloro-purin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(6-aminopurin-7-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(7-amino-1,2,3-triazolo[4,5-d]pyrimidin-3-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(7-amino-1,2,3-triazolo[4,5-d]pyrimidin-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(6-amino-9H-purin-2-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(2-amino-6-ethylamino-pyrimidin-4-ylsulfanylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(3-amino-5-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(5-amino-3-methylsulfanyl-1,2,4-triazol-1-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(6-methylaminopurin-9-ylmethyl)-3-o-tolyl-3H-quinazolin-4-one

2-(6-benzylaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

2-(2,6-diaminopurin-9-ylmethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one

5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3-o-tolyl-3H-quinazolin-4-one

3-isobutyl-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

N-{2-[5-Methyl-4-oxo-2-(9H-purin-6-ylsulfanylmethyl)-4H-quinazolin-3-yl]-phenyl}-acetamide

5-methyl-3-(E-2-methyl-cyclohexyl)-2-(9H-purin-6-yl-sulfanylmethyl)-3H-quinazolin-4-one

2-[5-methyl-4-oxo-2-(9H-purin-6-ylsulfanylmethyl)-4H-quinazolin-3-yl]-benzoic acid

3-{2-[(2-dimethylaminoethyl)methylamino]phenyl}-5-methyl-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-methoxy-2-(9H-purin-6-ylsulfanyl-methyl)-3H-quinazolin-4-one

3-(2-chlorophenyl)-5-(2-morpholin-4-yl-ethylamino)-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

3-benzyl-5-methoxy-2-(9H-purin-6-ylsulfanylmethyl)-3H-quinazolin-4-one

2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

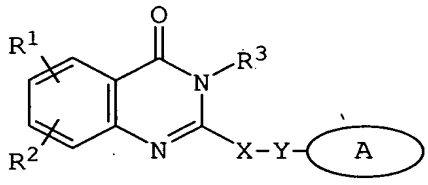
2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methyl-pyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylamino-propoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-ynyloxyphenyl)-3H-quinazolin-4-one; and
2-{2-(1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-quinazolin-3-yl]-phenoxy}-acetamide.

3. (Currently amended) A method of inhibiting kinase activity of a phosphatidylinositol 3-kinase delta polypeptide comprising a step of contacting the polypeptide with a compound having a structure



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the bicyclic system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b, and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, and SO_2, NH, O, C(=O), OC(=O), C(=O)O, and $NHC(=O)CH_2S$;

R^1 and R^2, independently, are selected from the group consisting of hydrogen, C_{1-6}alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}alkyleneN(R^a)_2$, NO_2, OR^a, CF_3, OCF_3, $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, $arylOR^b$, Het, $NR^aC(=O)C_{1-3}alkyleneC(=O)OR^a$, $arylO-C_{1-3}alkyleneN(R^a)_2$, $arylOC(=O)R^a$, $C_{1-4}alkyleneC(=O)OR^a$, $OC_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^a$, $C(=O)NR^aSO_2R^a$, $C_{1-4}alkyleneN(R^a)_2$, $C_{2-6}alkenyleneN(R^a)_2$, $C(=O)NR^aC_{1-4}alkyleneOR^a$, $C(=O)NR^aC_{1-4}alkyleneHet$,

OC_{2-4}alkyleneN$(R^a)_2$, OC_{1-4}alkyleneCH$(OR^b)CH_2N(R^a)_2$, OC_{1-4}alkyleneHet, OC_{2-4}alkyleneOR^a, OC_{2-4}alkylene-$NR^aC(=O)OR^a$, NR^aC_{1-4}alkyleneN$(R^a)_2$, $NR^aC(=O)R^a$, $NR^aC(=O)$-$N(R^a)_2$, $N(SO^2C_{1-4}alkyl)_2$, $NR^a(SO_2C_{1-4}alkyl)$, $SO_2N(R^a)_2$, OSO_2CF_3, C_{1-3}alkylenearyl, C_{1-4}alkyleneHet, C_{1-6}alkylene-OR^b, C_{1-3}alkyleneN$(R^a)_2$, $C(=O)N(R^a)_2$, $NHC(=O)C_1$-C_3alkyl-enearyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, aryl-OC_{1-3}alkyleneN$(R^a)_2$, arylO$C(=O)R^b$, $NHC(=O)C_{1-3}$alkylene-C_{3-8}heterocycloalkyl, $NHC(=O)C_{1-3}$alkyleneHet, OC_{1-4}alk-yleneOC_{1-4}alkyleneC$(=O)OR^b$, $C(=O)C_{1-4}$alkyleneHet, and $NHC(=O)$haloC_{1-6}alkyl;

or R^1 and R^2 are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^3 is selected from the group consisting of optionally substituted hydrogen, C_{1-6}alkyl, C_{3-8}cyclo-alkyl, C_{3-8}heterocycloalkyl, C_{1-4}alkylenecycloalkyl, C_{2-6}alkenyl, C_{1-3}alkylenearyl, arylC_{1-3}alkyl, $C(=O)R^a$, aryl, heteroaryl, $C(=O)OR^a$, $C(=O)N(R^a)_2$, $C(=S)N(R^a)_2$, SO_2R^a, $SO_2N(R^a)_2$, $S(=O)R^a$, $S(=O)N(R^a)_2$, $C(=O)NR^aC_{1-4}$alk-yleneOR^a, $C(=O)NR^aC_{1-4}$alkyleneHet, $C(=O)C_{1-4}$alkylenearyl, $C(=O)C_{1-4}$alkyleneheteroaryl, C_{1-4}alkylenearyl substituted with one or more of $SO_2N(R^a)_2$, $N(R^a)_2$, $C(=O)OR^a$, $NR^aSO_2CF_3$, CN, NO_2, $C(=O)R^a$, OR^a, C_{1-4}alkyleneN$(R^a)_2$, and OC_{1-4}alkyleneN$(R^a)_2$, C_{1-4}alkyleneheteroaryl, C_{1-4}alkyl-eneHet, C_{1-4}alkyleneC$(=O)C_{1-4}$alkylenearyl, C_{1-4}alkylene-$C(=O)C_{1-4}$alkyleneheteroaryl, C_{1-4}alkyleneC$(=O)$Het, C_{1-4}alkyleneC$(=O)N(R^a)_2$, C_{1-4}alkyleneOR^a, C_{1-4}alkylene-$NR^aC(=O)R^a$, C_{1-4}alkyleneOC_{1-4}alkyleneOR^a, C_{1-4}alkylene-$N(R^a)_2$, C_{1-4}alkyleneC$(=O)OR^a$, and C_{1-4}alkyleneOC_{1-4}alkyl-eneC$(=O)OR^a$;

R^a is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-3}alkyleneN$(R^c)_2$, aryl, arylC_{1-3}alkyl, C_{1-3}alkylenearyl, heteroaryl, heteroarylC_{1-3}alkyl, and C_{1-3}alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

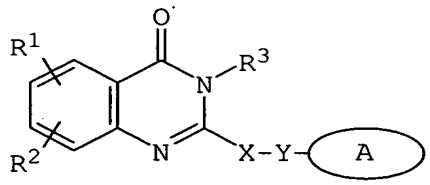
R^b is selected from the group consisting of hydrogen, C_{1-6}alkyl, heteroC_{1-3}alkyl, C_{1-3}alkyleneheteroheteroaryl, C_{1-3}alkylenearyl, and C_{1-3}alkyleneheteroaryl;

R^c is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, aryl, and heteroaryl;

Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C_{1-4}alkyl or C(=O)OR^a;

and pharmaceutically acceptable salts ~~and~~ or solvates thereof.

4. (Currently amended) A compound having a general structural formula



(I)

wherein A is an optionally substituted monocyclic 5-membered heterocyclic ring system containing two or three nitrogen atoms or a bicyclic ring system containing at least two nitrogen atoms, and at least one ring of the cyclic system is aromatic;

X is selected from the group consisting of $C(R^b)_2$, CH_2CHR^b, and $CH=C(R^b)$;

Y is selected from the group consisting of null, S, SO, and SO_2, NH, O, C(=O), OC(=O), C(=O)O, and $NHC(=O)CH_2S$;

R^1 and R^2, independently, are selected from the group consisting of hydrogen, C_{1-6}alkyl, aryl, heteroaryl, halo, $NHC(=O)C_{1-3}alkyleneN(R^a)_2$, NO_2, OR^a, CF_3, OCF_3, $N(R^a)_2$, CN, $OC(=O)R^a$, $C(=O)R^a$, $C(=O)OR^a$, aryl-OR^b, Het, $NR^aC(=O)C_{1-3}alkyleneC(=O)OR^a$, $arylOC_{1-3}alkyleneN(R^a)_2$, $arylOC(=O)R^a$, $C_{1-4}alkyleneC(=O)OR^a$, $OC_{1-4}alkyleneC(=O)OR^a$, $C_{1-4}alkyleneOC_{1-4}alkyleneC(=O)OR^a$, $C(=O)NR^aSO_2R^a$, $C_{1-4}alkyleneN(R^a)_2$, $C_{2-6}alkenyleneN(R^a)_2$, $C(=O)NR^aC_{1-4}alkyleneOR^a$, $C(=O)NR^aC_{1-4}alkyleneHet$, $OC_{2-4}alkyleneN(R^a)_2$, $OC_{1-4}alkyleneCH(OR^b)CH_2N(R^a)_2$, $OC_{1-4}alkyleneHet$, $OC_{2-4}alkyleneOR^a$, $OC_{2-4}alkyleneNR^aC(=O)OR^a$, $NR^aC_{1-4}alkyleneN(R^a)_2$, $NR^aC(=O)R^a$, $NR^aC(=O)N(R^a)_2$, $N(SO_2C_{1-4}alkyl)_2$,

$NR^a(SO_2C_{1-4}alkyl)$, $SO_2N(R^a)_2$, OSO_2CF_3, C_{1-3}alkylenearyl, C_{1-4}alkyleneHet, C_{1-6}alkyleneOR^b, C_{1-3}alkyleneN$(R^a)_2$, $C(=O)N(R^a)_2$, $NHC(=O)C_1$-C_3alkylenearyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, arylOC_{1-3}alkyleneN$(R^a)_2$, aryl-$OC(=O)R^b$, $NHC(=O)C_{1-3}$alkyleneC$_{3-8}$heterocycloalkyl, $NHC(=O)C_{1-3}$alkyleneHet, OC_{1-4}alkyleneOC_{1-4}alkylene-$C(=O)OR^b$, $C(=O)C_{1-4}$alkyleneHet, and $NHC(=O)$haloC_{1-6}alkyl;

or R^1 and R^2 are taken together to form a 3- or 4-membered alkylene or alkenylene chain component of a 5- or 6-membered ring, optionally containing at least one heteroatom;

R^3 is selected from the group consisting of optionally substituted hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-4}alkylenecycloalkyl, C_{2-6}alkenyl, C_{1-3}alkylenearyl, arylC_{1-3}alkyl, $C(=O)R^a$, aryl, heteroaryl, $C(=O)OR^a$, $C(=O)N(R^a)_2$, $C(=S)N(R^a)_2$, SO_2R^a, $SO_2N(R^a)_2$, $S(=O)R^a$, $S(=O)N(R^a)_2$, $C(=O)NR^aC_{1-4}$alkyleneOR^a, $C(=O)NR^aC_{1-4}$alkyleneHet, $C(=O)C_{1-4}$alkylenearyl, $C(=O)C_{1-4}$alkyleneheteroaryl, C_{1-4}alkylenearyl substituted with one or more of $SO_2N(R^a)_2$, $N(R^a)_2$, $C(=O)OR^a$, $NR^aSO_2CF_3$, CN, NO_2, $C(=O)R^a$, OR^a, C_{1-4}alkyleneN$(R^a)_2$, and OC_{1-4}alkyleneN$(R^a)_2$, C_{1-4}alkyleneheteroaryl, C_{1-4}alkylene-Het, C_{1-4}alkyleneC$(=O)C_{1-4}$alkylenearyl, C_{1-4}alkyleneC$(=O)$-C_{1-4}alkyleneheteroaryl, C_{1-4}alkyleneC$(=O)$Het, C_{1-4}alkyl-eneC$(=O)N(R^a)_2$, C_{1-4}alkyleneOR^a, C_{1-4}alkyleneNR^{a}C$(=O)R^a$, C_{1-4}alkyleneOC_{1-4}alkyleneOR^a, C_{1-4}alkyleneN$(R^a)_2$, C_{1-4}alk-yleneC$(=O)OR^a$, and C_{1-4}alkyleneOC_{1-4}alkyleneC$(=O)OR^a$;

R^a is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, C_{1-3}alkyleneN$(R^c)_2$, aryl, arylC_{1-3}alkyl, C_{1-3}alkylenearyl, heteroaryl, heteroarylC_{1-3}alkyl, and C_{1-3}alkyleneheteroaryl;

or two R^a groups are taken together to form a 5- or 6-membered ring, optionally containing at least one heteroatom;

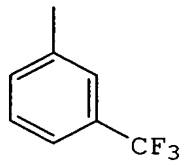
R^b is selected from the group consisting of hydrogen, C_{1-6}alkyl, heteroC_{1-3}alkyl, C_{1-3}alkyleneheteroC_{1-3}alkyl, arylheteroC_{1-3}alkyl, and aryl, heteroaryl, arylC_{1-3}alkyl, heteroarylC_{1-3}alkyl, C_{1-3}alkylenearyl, and C_{1-3}alkyleneheteroaryl;

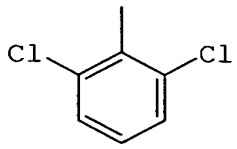
R^c is selected from the group consisting of hydrogen, C_{1-6}alkyl, C_{3-8}cycloalkyl, aryl, and heteroaryl;

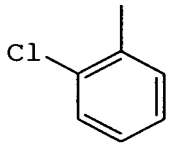
Het is a 5- or 6-membered heterocyclic ring, saturated or partially or fully unsaturated, containing at least one heteroatom selected from the group consisting of oxygen, nitrogen, and sulfur, selected from the group consisting of 1,3-dioxolane, 2-pyrazoline, pyrazolidine, pyrrolidine, piperazine, pyrroline, 2H-pyran, 4H-pyran, morpholine, thiomorpholine, piperidine, 1,4-dithiane, and 1,4-dioxane, and optionally substituted with C_{1-4}alkyl or $C(=O)OR^a$;

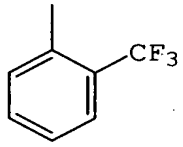
and pharmaceutically acceptable salts ~~and~~ or solvates thereof,

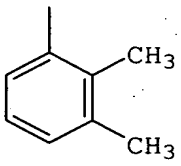
with the provisos that if X-Y is CH_2S, then R^3 is different from

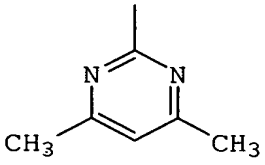










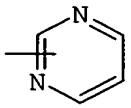


and if X-Y is CH_2S, then R^3 is different from $-CH_2CH(OH)CH_2OH$ substituted phenyl.

5. (Original) The compound of claim 4 wherein X is selected from the group consisting of CH_2, CH_2CH_2, CH=CH, $CH(CH_3)$, $CH(CH_2CH_3)$, and $CH_2CH(CH_3)$, and $C(CH_3)_2$.

6. (Original) The compound of claim 5 wherein Y is selected from the group consisting of null, S, and NH.

7. (Original) The compound of claim 5 wherein the A ring system is selected from the group consisting of



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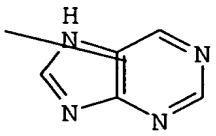

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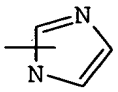

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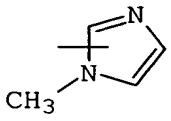

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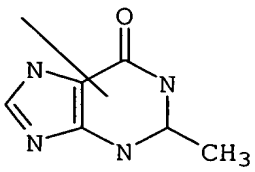

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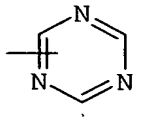
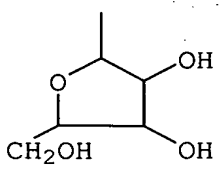
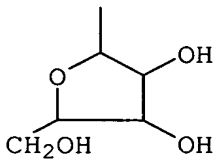


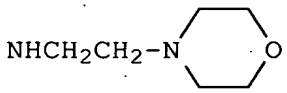
8. (Original) The compound of claim 7 wherein the A ring system is substituted with one to three substituents selected from the group consisting of $N(R^a)_2$, halo, C_{1-3}alkyl, $S(C_{1-3}alkyl)$, OR^a, and



9. (Original) The compound of claim 8 wherein the A ring system is substituted with one to three substituents selected from the group consisting of NH_2, $NH(CH_3)$, $N(CH_3)_2$, $NHCH_2C_6H_5$, $NH(C_2H_5)$, Cl, F, CH_3, SCH_3, OH, and



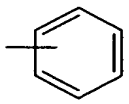
10. (Original) The compound of claim 5 wherein R^1 and R^2, independently, are selected from the group consisting of hydrogen, OR^a, halo, C_{1-6}alkyl, CF_3, NO_2, $N(R^a)_2$, NR^aC_{1-3}alkyleneN$(R^a)_2$, and OC_{1-3}alkyleneOR^a. Specific substituents include, but are not limited to, H, OCH_3, Cl, Br, F, CH_3, CF_3, NO_2, OH, $N(CH_3)_2$,

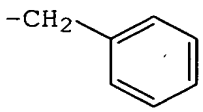


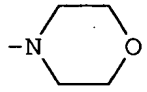
and $O(CH_2)_2OCH_2C_6H_5$, or R^1 and R^2 are taken together to form a five- or six-membered ring.

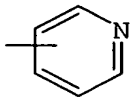
11. (Original) The compound of claim 5 wherein R^3 is selected from the group consisting of C_{1-6}alkyl, aryl, heteroaryl, C_{3-8}cycloalkyl, C_{3-8}heterocycloalkyl, $C(=O)OR^a$, C_{1-4}alkyleneHet, C_{1-4}alkylenecycloalkyl, C_{1-4}alkylenearyl, C_{1-4}alkyleneC$(=O)C_{1-4}$alkylenearyl, C_{1-4}alkyleneC$(=O)OR^a$, C_{1-4}alkyleneC$(=O)N(R^a)_2$, C_{1-4}alkyleneC$(=O)$Het, C_{1-4}alkyleneN$(R^a)_2$, and C_{1-4}alkyleneNR^aC$(=O)R^a$.

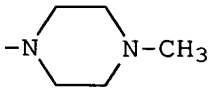
12. (Original) The compound of claim 5 wherein R^3 is selected from the group consisting of OR^a, C_{1-6}alkyl, aryl, heteroaryl, NO_2, $N(R^a)_2$, $NR^aC(=O)R^a$, $C(=O)OC_2H_5$, $CH_2CH(CH_3)_2$,

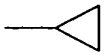












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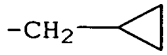

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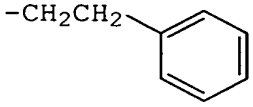

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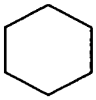

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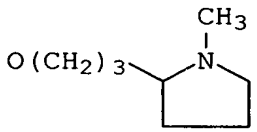
13. (Original) The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of halo, OR^a, C_{1-6}alkyl, aryl, heteroaryl, NO_2, $N(R^a)_2$, $NR^aSO_2CF_3$, $NR^aC(=O)R^a$, $C(=O)OR^a$, $SO_2N(R^a)_2$, CN, $C(=O)R^a$, C_{1-4}alkyleneN$(R^a)_2$, OC_{1-4}alkyleneC$\equiv$CR^a, OC_{1-4}alkyleneC$(=O)N(R^a)_2$, OC_{1-4}alkylenearyl, OC_{1-4}alkyleneheteroaryl, OC_{1-4}alkyleneHet, OC_{1-4}alkyleneN$(R^a)_2$, and N$(R^a)C_{1-4}$alkyleneN$(R^a)_2$.

14. (Original) The compound of claim 4 wherein R^3 is substituted with a substituent selected from the group consisting of Cl, F, CH_3, $CH(CH_3)_2$, OH, OCH_3, $OCH_2C_6H_5$, $O(CH_2)_3N(CH_3)_2$, $OCH_2C{\equiv}CH$, $OCH_2C(=O)NH_2$, C_6H_5, NO_2, NH_2, $NHC(=O)CH_3$, CO_2H, and $N(CH_3)CH_2CH_2N(CH_3)_2$, and



15. The compound of claim 4 selected from the group consisting of:

2-(6-aminopurin-9-ylmethyl)-3-(2-benzyloxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-hydroxyphenyl)-5-methyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

5-methyl-2-[1-(9H-purin-6-ylamino)propyl]-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-fluoro-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(1-(2-amino-9H-purin-6-ylamino)propyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(2-benzyloxy-1-(9H-purin-6-ylamino)ethyl)-5-methyl-3-o-tolyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-{2-(2-(1-methylpyrrolidin-2-yl)-ethoxy)-phenyl}-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-3-(2-(3-dimethylaminopropoxy)-phenyl)-5-methyl-3H-quinazolin-4-one;

2-(6-aminopurin-9-ylmethyl)-5-methyl-3-(2-prop-2-ynyloxyphenyl)-3H-quinazolin-4-one; and

2-{2-(1-(6-aminopurin-9-ylmethyl)-5-methyl-4-oxo-4H-quinazolin-3-yl]-phenoxy}-acetamide.